

REMARKS

Applicants thank the Examiner for withdrawing the Objections to the Title and Abstract.

Applicants thank the Examiner for conducting a Personal Interview with Applicants' representative on December 5, 2003. In this Interview, Applicants discussed the disclosure of *Nakamura et al.* (US 5,691,791) with the Examiner, and emphasized that each of the disclosed embodiments clearly showed insulation layers constructed of at least two layers.

Status of the Application

Claims 1-10, 16-32 and 49-54 are all the claims pending in the Application. Claims 1-10, 16-24 and 49-54 have been rejected. Claims 25-27 and 30-32 are withdrawn from consideration.

Anticipation Rejection

The Examiner has rejected claims 1-3, 5-10, 16-18, 20, 21, 23, 24 and 49-54 under 35 U.S.C. § 102(b) as being anticipated by *Nakamura et al.* (US 5,691,791; hereinafter "*Nakamura*") and claims 4 and 19 under 35 U.S.C. § 103(a) as being unpatentable over *Nakamura* in view of *Ebihara et al.* (US 5,990,955 A; hereinafter "*Ebihara*"). These rejections are respectfully traversed.

Nakamura discloses different constructions and methods of manufacturing a bottom substrate for a liquid crystal display device that has dot shaped convex portions (*see* pads 4 and 5 in FIG. 3). The methods involve, as shown in FIGS. 5A-5E, placing a resin layer 21 on a substrate 2, creating small projections 23 and large projections 24 by way of photomask 22, and covering the projections with a resin layer 6 and a reflection layer 7. Thus, the insulator layer,

i.e., the layer between substrate 2 and reflection layer 7, is made up of two distinct layers 23/24 and 6.

The other embodiments of Nakamura also disclose a two layer structure, for example: (1) FIG. 1 discloses an insulation layer made up of large resin projections 4, small resin projections 5, and polymer resin layer 6; (2) FIG. 17 discloses an insulation layer formed of projections 114a and 114b and polymer resin layer 115; (3) FIGS. 19F and 23 disclose an insulation layer formed of projections 252 and organic insulating layer 254; and (4) FIG. 32 discloses an insulation layer formed of projections 332a, 332b and polymer resin layer 333.

In the above-noted interview, the Examiner agreed that the above listed embodiments of *Nakamura* fail to teach or suggest that (1) “at least one portion of the insulation film is a single material that extends laterally along the second substrate under the entirety of at least two adjacent convex portions of the convex/concave structure,” and that “the at least one portion of the insulation film has, along its length, a generally constant thickness extending at least from an uppermost surface of the second substrate an insulation layer of the switching element to a lowermost surface of a concave portion of the convex/concave structure located between the at least two adjacent convex portions,” as recited in independent claims 1 and 16; (2) “the insulation film is a single-layered film made from a single material,” as recited in independent claims 51 and 52; and (3) “the entire insulation film between said reflection electrode and said second substrate is made from a single material arranged in a single step,” as recited in independent claims 53 and 54.

Nevertheless, in the above-noted interview, the Examiner alleged that FIG. 27 of *Nakamura* does show a one-layer resin layer 292 that corresponds to the “insulation film” recited in each of the above claims.

However, as indicated during the interview (and herein repeated for the Examiner’s convenience), Applicants respectfully submit that the embodiment illustrated in FIG. 27 of *Nakamura* discloses a two layer resin layer 292, similar to the other embodiments of *Nakamura*.

Specifically, *Nakamura* clearly indicates that the resin layer 292 is formed “using the method and materials described in Example 5” (see col. 19, lines 40-44). Example 5 utilizes the process shown in FIGS. 19A-19F to form an insulating layer made up of projections 252 and organic insulating layer 254. Thus, although not shown in detail in FIG. 27 (most likely for simplicity), it is clear that resin layer 292 is made up of *at least 2* layers, *i.e.*, projections and a covering layer.

In fact, *Nakamura* fails to teach or suggest any alternative method of manufacturing resin layer 292 that could possibly form resin layer 292 as a single layer. Thus, one of ordinary skill would not have been apprised of any other that a two-layer construction for forming resin layer 292.

Thus, Applicants respectfully submit that the structures of all the lower substrates disclosed in *Nakamura* are similar to (and no more pertinent than) the related art described in Applicants’ Specification, as shown in FIG. 36 (see protrusions 10 and polyimide film 11 provided on glass substrate 8).

Additionally, Applicants respectfully submit that *Nakamura* also fails to teach or suggest that convex portions of the convex/concave structure “are formed in a continuous line shape,” as recited in independent claims 1, 16 and 51-54. This continuous line shape provides excellent dimensional and pattern control in manufacturing.

In contrast, *Nakamura* only discloses convex portions arranged in dot shapes, such as are shown in FIG. 3. These dot shaped convex portions suffer from many disadvantages compared to the continuous line shape of the invention, as the sidewall shape thereof cannot be adjusted accurately because a dot shape has variation in all directions, which results in significant error in the dot pattern, which in turn causes non-uniform cross section within a panel and associated non-uniform brightness of an LCD panel.

Regarding *Ebihara*, Applicants respectfully submit that *Ebihara* is not at all directed towards the provision of concave and convex portions by way of an insulation layer, nor towards the provision of line shaped convex portions, and therefore fails to teach or suggest the features identified above as missing from *Nakamura*.

Thus, Applicants respectfully submit that independent claims 1, 16 and 51-54 are patentable over the applied references. Further, Applicants respectfully submit that rejected dependent claims 2-10, 17-32¹, 49 and 50 are allowable, *at least* by virtue of their dependency.

Thus, Applicants respectfully request that the Examiner withdraw this rejection.

¹ As generic independent claim 16 is believed to be allowable, Applicants respectfully request rejoinder and allowance of withdrawn claims 25-32.

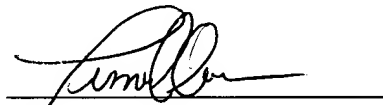
Conclusion

In view of the foregoing, it is respectfully submitted that claims 1-10, 16-32 and 49-54 are allowable. Thus, it is respectfully submitted that the application now is in condition for allowance with all of the claims 1-10, 16-32 and 49-54.

If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned attorney at the telephone number listed below.

Please charge any fees which may be required to maintain the pendency of this application, except for the Issue Fee, to our Deposit Account No. 19-4880.

Respectfully submitted,



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